CH-504 **Roll No.** | | | | | | | | | | |

B.TECH
(SEM V) ODD SEMESTER EXAMINATION, 2015-16
CHEMICAL TECHNOLOGY-II

Time: 3 Hours **Max. Marks: 100**

Note: Attempt all questions. All questions carry equal marks.

1. Attempt any **four parts** of the followings: (4x5=20)

   (a) Describe the current status of chlor-alkali industries in Indian context.
   (b) With a neat diagram, describe the manufacturing of soda ash by Solvay process.
   (c) Describe the manufacturing of HCl with a neat flow diagram.
   (d) What are the major engineering problems involved in the production of caustic and chlorine by electrochemical process?
   (e) Describe a method foe chlorine production.
   (f) Write the advantages and disadvantages of mercury and membrane cell.

2. Attempt any **four parts** of the followings: (4x5=20)

   (a) Write the various resources available in India for generating SO2 for sulfuric acid industry?
   (b) Explain the manufacturing process of sulfuric acid by contact process.
   (c) Give the flowsheet for production of phosphoric acid by HCl leaching process and write the chemical reactions involved.
   (d) With the help of appropriate diagram, describe the Frasch process for the mining of sulfur.
   (e) What are major engineering problem in manufacturing of sulfuric acid by contact process.
   (f) Write the wet process for the Portland cement manufacturing.

3. Attempt any **two parts** of the followings: (2x10=20)

   (a) Describe the manufacturing of phosphoric acid by strong acid process with the help of a neat diagram. What are the major engineering problems in it?
   (b) What are superphosphates? Write the manufacturing of triple superphosphate from rock. Discuss, how the various impurities removed during the production.
   (c) How phosphorus is produced by electric furnace method? Write the chemical reactions and major engineering problems involved in such a process. What is the consumption pattern of phosphorus?

4. Attempt any **two parts** of the followings: (2x10=20)

   (a) What is the current status of nitrogen fertilizers in India? Write the method of production of nitric acid by ammonia oxidation method with the help of a neat flow diagram.
   (b) Differentiate between mixed fertilizer and complex fertilizers. Classify all types of biofertilizers. What are the advantages of using biofertilizers?
   (c) Write the manufacturing of urea by ammonium carbamate process with a neat flow diagram. What are the major engineering problem in it?

5. Write any **two parts** of the followings: (2 x10= 20)

   (a) Explain the partial combustion process for the manufacturing of synthesis gas. What are inert gases and why they are used in chemical industries?
   (b) Explain the liquefaction process for the production of nitrogen and oxygen by air. What are the industrial importance of oxygen?
   (c) Write the various processes available for the production of hydrogen. Also describe the manufacturing process of ammonia with a neat diagram.